

Table of comparative maximum and minimum temperatures for October.

State or Territory.	Station.	For 1885.		Since establishment of station.			
		Max.	Min.	Max.	Year.	Min.	Year.
Alabama	Mobile	82.2	40.7	93.0	1884	34.0	1873
Do	Montgomery	79.4	40.0	96.1	1884	33.0	1873
Arizona	Prescott	84.0	29.8	86.0	1877	18.0	1880
Do	Fort Apache	86.9	29.8	85.3	1884	19.0	1880
Arkansas	Fort Smith	87.8	32.0	94.7	1883	39.0	1884
Do	Little Rock	83.3	38.8	91.0	1881	39.0	1880
California	San Francisco	70.0	52.8	84.0	1871	45.0	1881
Do	Red Bluff	96.0	46.0	94.0	1877	32.0	1881
Colorado	Denver	80.1	21.9	86.0	1873	1.0	1873
Do	Pike's Peak	36.4	-1.2	47.0	1877	-17.0	1878
Connecticut	New Haven	76.0	31.5	86.0	1881	24.0	1879
Do	New London			82.7	1879	27.2	1883
Dakota	Fort Buford	78.2	15.4	95.0	1879	9.0	1881
Do	Yankton	83.1	25.5	89.0	1879	9.0	1878
Delaware	Cape Henlopen	79.0	37.5				
Do	Del. Breakwater			84.0	1881	34.5	1884
District of Columbia	Washington City	75.5	35.3	92.3	1881	25.0	1873
Florida	Jacksonville	84.0	49.4	92.0	1883	40.0	1873
Do	Key West	87.4	69.1	92.0	1870	65.0	1870
Georgia	Atlanta	73.9	37.0	90.8	1884	33.0	1884
Do	Savannah	82.4	47.0	92.0	1884	37.0	1873
Idaho	Boisé City			85.0	1879, 1880	19.0	1878
Do	Lewiston	79.0	31.3	84.0	1880	28.0	1881
Illinois	Calro	78.1	38.3	88.0	'72, '81, '84	24.0	1873
Do	Chicago	69.0	35.6	83.4	1884	25.0	1873
Indiana	Indianapolis	77.8	31.4	87.0	1884	23.0	1878
Indian Territory	Fort Sill	88.0	33.0	91.0	1878	25.0	1878
Iowa	Dubuque	77.2	27.7	86.0	1879	20.0	1873
Do	Keokuk	77.5	30.0	87.0	1879	20.0	1873
Kansas	Dodge City	83.0	29.2	90.0	1843	10.0	1878
Do	Leavenworth	77.0	30.0	89.0	1871, 1874	14.0	1873
Kentucky	Louisville	79.0	39.7	90.0	1884	27.0	1878
Louisiana	New Orleans	80.2	48.9	90.8	1884	40.0	1873
Do	Shreveport	83.4	38.4	95.0	1883	31.0	1873
Maine	Eastport	61.0	29.4	80.0	1879	24.0	1881
Do	Portland	68.5	29.8	83.0	1879, 1881	28.0	1876, 1879
Maryland	Baltimore	76.1	38.0	89.0	1879, 1881	25.0	1879
Massachusetts	Boston	73.4	32.9	90.0	1881	25.0	1873
Michigan	Detroit	72.3	28.2	85.0	1879, 1884	22.0	1873
Do	Marquette	70.0	26.7	87.0	1879	18.0	1878
Minnesota	Duluth	67.9	25.1	78.0	1879	8.0	1878
Do	Saint Paul	79.0	24.9	87.0	1879	15.0	1878
Mississippi	Vicksburg	81.8	38.4	93.7	1884	34.0	1873
Missouri	Saint Louis	79.0	37.0	90.0	1879	45.0	1873
Montana	Fort Benton	78.2	21.8	87.0	1875	0.0	1881
Do	Helena	76.9	29.3	75.0	1880	10.0	1881
Nebraska	North Platte	83.0	18.6	89.0	1879	11.0	1878
Do	Omaha	75.5	30.2	77.0	1879	15.0	1878
Nevada	Winnemucca	82.3	20.8	84.0	1879	10.0	1878
New Hampshire	Mount Washington	54.2	9.6	59.0	1871	-3.0	1881
New Jersey	Atlantic City	73.9	33.6	83.0	1881, 1884	29.0	1879
Do	Sandy Hook	75.0	36.1	87.0	1881	33.0	1870
New Mexico	Santa Fé	74.5	27.0	85.0	1878	16.0	1880
New York	Buffalo	79.8	29.1	83.0	1879	24.7	1884
Do	New York City	74.1	34.3	84.3	1880	31.0	1876
North Carolina	Charlotte	73.8	37.8	91.9	1884	30.0	1879
Do	Wilmington			92.5	1884	32.0	1870
Ohio	Cincinnati	78.0	30.6	87.7	1884	47.0	1873
Do	Toledo	74.1	28.2	86.0	1872	25.0	1876
Oregon	Portland	82.2	34.5	79.0	1876	31.0	1877
Do	Roseburg	90.9	33.5	70.0	1877, 1880	22.5	1881
Pennsylvania	Philadelphia	78.2	34.0	87.0	1879, 1881	31.0	1873, 1876
Do	Pittsburg	81.8	45.5	91.1	1884	28.0	1870
Rhode Island	Block Island	68.9	35.3	75.4	1881	35.0	1870
Do	Newport			81.5	1879	30.0	1876
South Carolina	Charleston	81.9	46.0	93.0	1883	39.0	1873
Tennessee	Knoxville	75.8	32.4	94.0	1884	25.0	1870
Do	Nashville	77.8	33.2	91.9	1884	28.0	1873
Texas	Fort Davis	85.0	35.0	90.0	1881	30.0	1880
Do	Galveston	81.7	49.4	87.2	1884	45.0	1873
Utah	Salt Lake City	82.4	28.8	83.0	1876	22.0	1878
Vermont	Burlington			78.0	1879	22.0	1878
Virginia	Lynchburg	74.3	33.8	91.3	1884	28.0	1879
Do	Norfolk	81.6	42.8	89.0	1881, 1884	31.0	1876
Washington Ter.	Dayton	85.0	26.5	92.0	1880	19.0	1881
Do	Olympia	72.1	34.1	73.0	1880	23.0	1881
West Virginia	Morgantown			85.0	1879	25.0	1875
Wisconsin	La Crosse	73.0	26.0	84.0	1879, 1884	18.0	1878
Do	Milwaukee	69.5	31.1	83.1	1884	22.0	1878
Wyoming	Cheyenne	75.1	14.1	80.0	'73, '74, '79	-4.0	1878

## ICE.

The formation of ice in the various states and territories occurred as follows:

**Alabama.**—Mobile, 23d.

**Arkansas.**—Fort Smith, 20th; Lead Hill, 20th, 21st, 22d.

**Colorado.**—Montrose, 12th, 21st, 25th, 26th, 27th, 31st; West Las Animas, 12th.

**Connecticut.**—Southington, 7th; Bethel, 31st.

**Dakota.**—Fort Sully and Bismarck, 6th; Fort Buford, 12th, 13th.

**Idaho.**—Boisé City, 11th.

**Indiana.**—Jeffersonville, 21st, 22d,

**Iowa.**—Des Moines and Oskaloosa, 4th; Independence, 5th,

21st; Dubuque and West Union, 6th; Muscatine, 6th, 8th; Cedar Rapids, 6th, 21st.

**Kansas.**—Concordia, 3d; Salina, 3d, 9th, 14th; Westmoreland, 6th, 21st, 29th; Dodge City, 13th; Fort Scott, 14th, 20th; Yates Centre, 21st; Topeka, 29th.

**Maine.**—Kent's Hill, 8th; Eastport, 12th; Bangor, 30th, 31st.

**Massachusetts.**—Heath and Taunton, 7th, 8th; Blue Hill, 7th, 31st.

**Michigan.**—Escanaba, 5th, 6th, 18th, 21st to 24th, 29th to 31st; Hudson, 20th; Manistique, 21st; Lansing, 23d, 24th; Detroit and Port Huron, 31st.

**Minnesota.**—Duluth, 4th, 8th; Saint Paul, 5th, 6th, 14th.

**Missouri.**—Lamar, 14th, 21st; Centreville, 21st.

**Nebraska.**—Genoa, 4th, 5th, 8th, 13th, 14th, 19th, 20th, 21st, 29th; Fairbury, 4th, 6th; Yutan, 4th, 6th, 8th, 14th, 20th, 21st, 22d, 29th; Valentine, 5th.

**New Hampshire.**—Contoocook, 12th.

**New Mexico.**—Santa Fé, 12th; Fort Stockton, 28th.

**New York.**—Albany, 8th; Humphrey, 8th, 16th, 24th, 25th, 26th; Rochester, 24th; Syracuse, 30th; Buffalo, 31st.

**North Carolina.**—Flat Rock, 5th, 14th, 20th to 25th.

**Ohio.**—North Lewisburg, 9th, 31st; Columbus, 24th; Cincinnati, 31st.

**Pennsylvania.**—Erie, 8th.

**Tennessee.**—Nashville, 21st, 22d, 24th; Austin, 22d; Ashwood, 22d, 24th.

**Vermont.**—Charlotte, 8th; Burlington, 12th.

**Virginia.**—Lynchburg: ice is reported to have been formed in the southwestern portion of Virginia during the night of the 6-7th; Bruington, 22d.

**Washington Territory.**—Fort Spokane, 11th.

**Wisconsin.**—Embarras, 5th, 8th, 14th, 15th, 16th, 18th, 23d, 24th, 29th.

## PRECIPITATION.

[Expressed in inches and hundredths.]

The distribution of rainfall over the United States and Canada for October, 1885, as determined from reports from more than eight hundred stations, is exhibited on chart iii.

In the following table are shown, for the several geographical districts, the normal October precipitation for a series of years; the average for October, 1885, and the excess or deficiency as compared with the normal:

## Average precipitation for October.

Districts.	Average for October, Signal-Service observations.		Comparison of October, 1885, with the average for several years.
	For several years.	For 1885.	
	Inches.	Inches.	Inches.
New England	4.03	5.79	+1.86
Middle Atlantic States	2.99	4.19	+1.20
South Atlantic States	4.22	6.18	+1.96
Florida Peninsula	5.29	5.07	-0.22
Eastern Gulf States	3.36	2.36	-1.00
Western Gulf States	4.06	1.59	-2.47
Rio Grande Valley	3.53	5.04	+1.51
Tennessee	3.24	4.20	+0.96
Ohio Valley	3.19	3.47	+0.28
Lower lake region	3.32	4.05	+0.73
Upper lake region	3.04	2.83	-0.21
Extreme northwest	2.06	0.58	-1.48
Upper Mississippi Valley	3.33	3.41	+0.08
Missouri Valley	2.25	2.09	-0.16
Northern slope	1.12	0.50	-0.62
Middle slope	1.60	1.08	-0.52
Southern slope	2.38	1.28	-1.10
Southern plateau	0.76	0.33	-0.43
Middle plateau	1.22	0.33	-0.89
Northern plateau	2.37	0.98	-1.39
North Pacific coast region	4.41	2.06	-2.35
Middle Pacific coast region	1.36	0.74	-0.62
South Pacific coast region	0.37	0.17	-0.20

The monthly precipitation has been below the average in all districts to the west of the Mississippi River, except in the lower part of the Missouri Valley and near the mouth of the Rio Grande River; it has also been deficient in the east Gulf states, portions of the Lake region and Ohio Valley, and at

certain stations on the middle Atlantic coast. The greatest deficiency occurred in the west Gulf states, where during the preceding month the precipitation was about double the average. In the Rocky Mountain districts and on the Pacific coast only about one-half of the average amount of rain fell.

In the states bordering on the Atlantic (except at certain stations on the coasts of New Jersey, Delaware, Maryland, and Virginia), in the lower Missouri and lower Ohio valleys, eastern Tennessee, and in Pennsylvania, the monthly precipitation has been above the average, the excess being greatest in the south Atlantic states and in New England.

The following are some of the greatest departures from the normal precipitation:

Above normal.		Below normal.	
	Inches.		Inches.
Lynchburg, Virginia	5.82	Palestine, Texas	3.83
Washington City	5.78	Galveston, Texas	3.55
Knoxville, Tennessee	4.92	Indianola, Texas	3.21
Saint Louis, Missouri	4.76	Portland, Oregon	3.20
Savannah, Georgia	3.98	Jacksonville, Florida	3.07
Erie, Pennsylvania	3.93	New Orleans, Louisiana	3.01
Mount Washington, New Hampshire	3.76	Moorhead, Minnesota	2.75
Baltimore, Maryland	3.65	Mobile, Alabama	2.68
Brownsville, Texas	3.60	Memphis, Tennessee	2.57
Hatteras, North Carolina	3.59	Vicksburg, Mississippi	2.51

In the tables of miscellaneous data will be found the monthly precipitation, and the departures from the normal, at the various stations of the Signal Service.

#### SNOW.

Snow fell in the various states and territories during the month, as follows:

**California.**—Fort Bidwell: on the 2d snow fell to a depth of two inches on the mountains west of this place.

**Colorado.**—Pike's Peak, 1st, 10th, 11th, 17th, 18th, 19th, 23d; Denver, 11th, 17th to 20th; Fort Lyon, 17th; West Las Animas, 18th, 20th.

**Dakota.**—Fort Totten, 4th, 7th, 19th, 20th, 26th, 27th, 28th; Bismarck and Fort Yates, 5th; Forts Bennett and Sully, 5th, 19th; Deadwood, 11th, 19th, 31st; Huron, 19th; Yankton, 20th; Fort Pembina, 19th, 29th; Fort Buford, 27th.

**Illinois.**—Sycamore, 31st.

**Indiana.**—Logansport, 20th, 28th, 31st; Fort Wayne, 31st.

**Indian Territory.**—Fort Supply, 18th.

**Iowa.**—Manchester and Oskaloosa, 4th, 20th; Burlington, Cedar Rapids, Keokuk, and Muscatine, 20th; Independence, 20th, 28th; Davenport, 20th, 31st; West Union, 20th, 28th, 30th, 31st; Cresco, 30th.

**Kansas.**—Westmoreland, 5th; Allison, 17th, 18th; Dodge City, 18th, 19th; Ninnescab, 19th.

**Maine.**—Bangor, 7th, 31st; Buckfield, 30th; Eastport, Gardiner, and Portland, 31st.

**Massachusetts.**—Fall River and Taunton, 31st.

**Michigan.**—Fort Brady, 3d, 4th; Mackinaw City, 3d, 4th, 7th, 28th; Marquette, 3d, 4th, 5th, 20th, 31st; Escanaba, 4th, 5th, 20th; Alpena, 6th; Grand Haven, 20th, 31st; Mottville, 21st, 31st; Port Huron, 30th; Lansing, 31st.

**Minnesota.**—Moorhead, 4th, 7th, 19th, 26th, 27th, 29th, 30th; Saint Paul, 4th, 19th, 20th, 30th, 31st; Northfield, 4th, 5th, 20th; Minneapolis, 4th, 20th, 31st; Saint Vincent, 6th, 19th, 20th, 29th, 31st; Duluth, 19th, 30th; Fort Snelling, 20th, 30th.

**Montana.**—Fort Ellis, 10th, 31st; Poplar River, 27th; Helena, 30th; Fort Maginnis, 31st.

**Nebraska.**—Fort Robinson, 11th, 17th, 31st; Valentine, 11th, 19th; North Platte, 19th; Omaha and Tecumseh, 20th.

**New Hampshire.**—Mount Washington, 6th, 29th, 30th.

**New Jersey.**—Dover, 30th; Atlantic City, 31st.

**New Mexico.**—Santa Fé, 9th.

**New York.**—North Volney, 5th, 30th; Syracuse, 6th, 7th, 30th; Buffalo, 6th, 30th; Ithaca and Menand Station, 8th, 30th; Albany, Fort Columbus, Madison Barracks, Oswego, Rochester, and West Point, 30th.

**Ohio.**—Hiram, 2d, 3d, 4th, 30th; Garrettsville, 5th, 30th; Cleveland, 6th; Toledo, 31st.

**Oregon.**—Lakeview, 22d.

**Pennsylvania.**—Pittsburg, 5th, 31st; Erie, 8th, 30th; Tidioute, 20th, 30th, 31st; Troy, 21st, 22d, 26th; Wysox, 29th, 30th.

**Rhode Island.**—Narragansett Pier and Point Judith, 31st.

**Utah.**—Salt Lake City, 10th, 31st.

**Vermont.**—Burlington, 7th, 30th; Charlotte, 30th.

**Wisconsin.**—Embarras, 19th, 20th, 21st, 27th, 28th, 29th; Neillsville, 19th, 20th, 31st; Milwaukee, 19th; Evansville, 20th, La Crosse and Wausau, 20th, 31st; Madison, 31st.

**Wyoming.**—Cheyenne, 3d, 11th, 18th, 31st; Fort Fred Steele, 10th, 11th, 30th, 31st; Fort Bridger, 10th; Fort Laramie, 11th.

#### MONTHLY SNOWFALLS.

[Expressed in inches and tenths.]

The following stations report monthly snowfalls of one inch or more:

**Colorado.**—Pike's Peak, 15; West Las Animas, 2.4.

**Dakota.**—Deadwood, 6.4; Fort Totten, 5.7; Fort Bennett, 1.5.

**Illinois.**—Sycamore, 3.

**Iowa.**—West Union, 1.2.

**Kansas.**—Allison, 2.2.

**Michigan.**—Marquette, 12; Lansing, 3; Escanaba, 2.6; Mottville, 2.

**Minnesota.**—Moorhead, 1.9; Duluth, 1.4; Saint Vincent, 1.2.

**Nebraska.**—North Platte, 2.

**New Brunswick.**—Parker's Ridge and Saint John, 1.

**New Hampshire.**—Mount Washington, 2.

**New York.**—Humphrey, 2.9; Rochester, 1.7; North Volney, 1.

**Vermont.**—Stowe, 5; Burlington, 3; Newport, 1.5; Lunenburg, 1.

**Wisconsin.**—Embarras, 7.2; Wausau, 3.5; Neillsville, 2.5.

**Wyoming.**—Fort Bridger, 3.4.

#### DEPTH OF UNMELTED SNOW ON GROUND AT END OF MONTH.

[Expressed in inches and tenths.]

**Colorado.**—Pike's Peak, 6.

**Dakota.**—Deadwood, 1.1.

**Illinois.**—Sycamore, 3.

**Indiana.**—Fort Wayne, 0.2.

**Maine.**—Eastport, 0.7.

**Minnesota.**—Saint Vincent, 0.5.

**New York.**—North Volney and Rochester, trace.

**Vermont.**—Newport, 1; Stowe, 0.1; Burlington, trace.

**Wisconsin.**—Embarras, 2; Wausau, trace.

#### HAIL.

Buffalo, New York: During the morning of the 5th a severe hail storm passed over this city in a direction from southwest to northeast. It began at 9.45 and lasted ten minutes, the hail-stones measuring about one-fourth inch in diameter.

Fort Verde, Arizona: at 8.30 p. m. (local time) on the 16th a violent hail storm, lasting only a few minutes, occurred at this place. The ground was covered with hail-stones, varying from one-fourth to three-fourths of an inch in diameter.

Abilene, Texas: during a thunder-storm on the morning of the 24th there was a heavy fall of hail, lasting from 9.25 to 9.40. The hail fell in sufficient quantity to remain on the ground two hours after the storm, the largest of the hail-stones measuring three-fourths of an inch in diameter.

Hail also occurred in the various states and territories, as follows:

**Arizona.**—San Carlos, 9th; Fort Verde, 16th.

**Connecticut.**—Southington, 2d.

**Dakota.**—Fort Pembina, 27th.

**Illinois.**—Sycamore, 20th.

**Indiana.**—Logansport, 20th.

**Iowa.**—Oskaloosa, 4th; Monticello, 20th.

**Kansas.**—West Leavenworth, 11th; Westmoreland, 18th, 27th.

**Maine.**—Bangor, 7th; Machias, 14th.